never having been found in that organ, and shows that the veins are supplied with valves, and perform the office of absorbents, carrying their contents into the superior longitudinal sinus, which appears rather to be a reservoir than a vein, for the fluid that passes through it is not simply circulating blood, but contains the colouring matter in a decomposed state, and is black as ink.

There can be little doubt, says Sir Everard, that the communication of sensation and volition is more or less dependent upon the viscid mucus which links the globules of the brain and nerves together; he then proceeds to show its existence in the blood, and that it is the medium by which the colouring matter is attached to the surface of the red globules. It would appear therefore, continues the author, that the principal materials of which the body is composed are found in the blood, with the exception of fat; fat, however, is found in the blood of the skate and salmon, and perhaps is united with the alkali in human blood.

Sir Everard next details the result of his examination of the veins of the coats of the stomach, and of the vasa brevia, which are also supplied with valves, and which act the part of absorbents. In tracing these veins towards the cavity of the stomach, they became indistinct just as they entered the villi.

This paper concludes with some observations respecting the structure and uses of the spleen, from which Sir Everard concludes that it is a reservoir to receive the superabundant serum carried into the circulation from the stomach into the splenic vein; and not only of the serum, but of the coagulable lymph, globules, soluble mucus, and colouring matter, which are carried to the thoracic duct when wanted.

On Two New Compounds of Chlorine and Carbon, and on a New Compound of Iodine, Carbon, and Hydrogen. By Mr. Faraday, *Chemical Assistant in the Royal Institution. Communicated by* W. T. Brande, *Esq. Sec. R.S. and Prof. Chem. R.I.* Read December 21, 1820. [*Phil. Trans.* 1821, *p.* 47.]

After some general observations respecting the action of chlorine upon compounds containing carbon, and more especially upon carburetted hydrogen gas, Mr. Faraday details the processes by which he succeeded in obtaining two binary compounds of carbon and chlorine; the first, which he calls perchloride of carbon, was formed by exposing the triple compound of carbon, hydrogen, and chlorine, with excess of chlorine, to the agency of the direct solar rays; muriatic acid was formed, and a white crystalline compound at the same time generated. The author next describes the method of purifying this compound, and details its properties, which are briefly these:—it forms crystals, which appear to result from a primitive octahedron; it does not conduct electricity; it is slowly volatile, like camphor, at common temperatures, fusing at 320°, and boiling at 360°. It is not easily combustible; but when retained in the flame of the lamp,

produces a red flame, with the formation of muriatic acid; it is insoluble in water, and readily soluble in alcohol, ether, and oils; and nearly insoluble in acids. When heated with several metallic peroxides it is decomposed with the production of carbonic acid, and a metallic perchloride.

The author describes several experiments made with a view to ascertain the proportions in which the carbon and chlorine exist in this compound, from which it appears, that as one volume of olefiant gas requires five volumes of chlorine for its conversion into muriatic acid and this new chloride, and as four volumes of muriatic acid are formed, so three volumes of chlorine must unite to two of carbon to form the solid chloride.

When this perchloride is passed through a red hot tube chlorine is evolved, and a liquid compound of carbon and chlorine is obtained, which assumes the form of a vapour at 170°, and which, like the former, is insoluble in water, but soluble in alcohol and ether, and burns with the same phenomena as the solid chloride.

The results of the author's analytical experiments upon this fluid compound, induce him to regard it as consisting of one proportion of each of its elements.

By exposing the vapour of iodine and olefiant gas to the sun's rays, Mr. Faraday obtained a colourless crystalline compound, difficultly combustible, but decomposable at a high temperature, of a sweet taste and aromatic odour, and composed of iodine, carbon, and hydrogen. He has not yet succeeded in forming a binary compound of carbon and iodine, though his experiments leave little doubt of the existence of such a compound, and of the possibility of forming it when aided by a bright sunshine.

An Account of the Comparison of various British Standards of Linear Measure. By Captain Henry Kater, *F.R.S. &c.* Read January 18, 1821. [*Phil. Trans.* 1821, *p.* 75.]

The Commissioners of Weights and Measures having recommended, for the legal determination of the standard yard, that employed by General Roy in the measurement of a base on Hounslow Heath, as a foundation for the trigonometrical operations that have been carried on by the Ordnance throughout the country, it became necessary to examine the standard to which the report alludes, with the intention of subsequently deriving from it a scale of feet and inches.

This standard consists of an iron bar, 20 feet long, described by Captain Kater, in which gold points are inserted, at the distance of 40 inches from each other, from a standard scale of Mr. Ramsden's, which was declared similar to that of General Roy, and also to that of the Royal Society; but on examining these scales, Captain Kater ascertained the existence of material differences between them; and being aware of the existence of other standards of high authority, he procured and compared them.